The serotype distribution of *Campylobacter* in patients with diarrhoea in Kuwait

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1. SUMMARY

Fifty one strains of *Campylobacter jejuni* / *coli* isolated from patients with diarrhoea, at the Amiri Hospital, Hawally, Kuwait were classified on the basis of the heatstable-HS-antigens and the heat-labile-HL-antigens, by using 20 and 23 hyperimmune antisera for the two methods, respectively. The ages of the patient ranged from 3 months to 60 years, and 72.6% of the strains were from children less than 4 years. With the number of antisera used 78.4% of the HS antigens and 96.1% of the HL antigens could be identified. About half of the strains had one of five HS antigens (4, 8, 13, 5 or 25) and 70.5% of the strains had one of five HL antigens (1, 36, 2, 6, or 21). The study shows that the most common HS and HL antigens among *Campylobacter* strains from Kuwait also are the most frequent antigens of strains from other parts of the world. A limited number of antisera are sufficient to identify the majority of the strains.

2. INTRODUCTION

Different methods to improve the understanding of the epidemiological features of *Campylobacter* diseases have been proposed during the last ten years [1–3]. Interest has been focused on the usefulness of serotyping methods [1,4–6]. The serotype distribution from different parts of the world has been investigated. In recent studies, we have performed combined typing using the two systems previously described by Penner [4] and Lior [5] respectively, on *Campylobacter* isolates originating from Sweden and Mexico.

In this communication we describe the serotype feature of *Campylobacter* isolated from patients suffering from diarrhoea in Kuwait.

3. MATERIALS AND METHODS

3.1. Patients

51 patients seeking medical attention for diarrhoea at the Amiri Hospital, Hawally, Kuwait were included. Age distribution was 3 months to 60 years. Most of the patients, (72.6%), were young children less than 4 years old.
3.2. **Bacteria**

The *Campylobacter jejuni/coli* isolates were identified as earlier described [15] and the strains were stored by lyophilization until serotyping.

3.3. **Serotyping**

All strains were serotyped regarding the HS antigens by the method of Penner et al. [4] and the HL antigens by the method of Lior et al. [5] as earlier described [8,10,11].

### 4. RESULTS

The most common HS antigens were 4, 8, 13, 5 and 25, and corresponded to 54.9% of the strains. The HL antigens 1, 36, 2, 6 and 21 were the most common ones, comprising 70.5% of the strains.

<table>
<thead>
<tr>
<th>Sero-type (HS)</th>
<th>No. of strains</th>
<th>Frequency (%)</th>
<th>Sero-type (HL)</th>
<th>No. of strains</th>
<th>Frequency (%)</th>
</tr>
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<tbody>
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<tr>
<td>8</td>
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<td>7</td>
<td>13.7</td>
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<td>5</td>
<td>9.8</td>
<td>2</td>
<td>5</td>
<td>9.8</td>
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<tr>
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<td>6</td>
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<td>5.9</td>
<td>21</td>
<td>4</td>
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<td><strong>78.4</strong></td>
<td><strong>49</strong></td>
<td><strong>96.1</strong></td>
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<tr>
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<td><strong>21.6</strong></td>
<td><strong>2</strong></td>
<td><strong>3.9</strong></td>
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</tr>
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<td><strong>51</strong></td>
<td><strong>100.0</strong></td>
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</tr>
</tbody>
</table>

*a Hyperimmune antisera against reference strains with HS antigens 2, 6, 9, 10, 15, 16, 17, 20, 21 and 22 were also tested, but none of the strains belonged to any of these serotypes.

*b Hyperimmune antisera against reference strains with HL antigens 5, 7, 12, 13, 17, 18, 19 and 20 were also tested, but none of the strains belonged to any of these serotypes.

Table 1

Campylobacter strains (n = 51) originating from patients with symptoms in Kuwait, ages 3 months–60 years, serotyped regarding the heat-stable-HS-antigen and the heat-labile-HL-antigen

5. **DISCUSSION**

In earlier studies, we demonstrated the suitability of serotyping methods as epidemiological probes for identifying strains of *C. jejuni/coli* [8,10,11]. We now report the serotype-feature of *Campylobacter* strains from patients with diarrhoea in Kuwait (Table 1). By identifying both the heat-stable-HS-antigen by the method described by Penner et al. [4] and the heat-labile-HL-antigen by the method of Lior [5], we found that the five most common HS serotypes, 4, 8, 13, 5 and 25, made up 54.9% of the strains, and that the five HL antigens 1, 36, 2, 6 and 21 represented 70.5% of the strains.

These results show that the most common HS and HL antigens among *Campylobacter* strains from Kuwait belonged to the most frequent serotypes of strains found in other parts of the world [8–11,13].

In the course of this study, 51 isolates were typed and assigned to the 20–23 antisera used in the two systems. For the HS antigen 21.6% of the strains, and for the HL antigens 3.9% of the strains could not be identified, using these antisera.

To provide a more sufficient differentiation, identification of both the HS and HL antigens is necessary [9,12–14]. In this material 30% of all strains were of HL antigen 1, but out of these there were at least five different HS antigens identified.

However, if the two typing systems are to be used together, it is not necessary to have all the sera in each system to obtain the necessary degree of discrimination.
In conclusion it is obvious that a limited range of sera can be used for identifying most of the *Campylobacter jejuni/coli* strains common also in this part of the world [8–11,13].

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REFERENCES